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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,408	07/29/2003	Rapeepat Ratasuk	CE10274R (78914)	7224

22242 7590 06/30/2005

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EXAMINER	
NG, CHRISTINE Y	
ART UNIT	**PAPER NUMBER**
2663	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/629,408	RATASUK ET AL.	
	Examiner	Art Unit	
	Christine Ng	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 16-26* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

2. Claims 1-12, 16-23, 25 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 2004/0082301 (Agin) in view of U.S. Patent No. 6,473,442 to Lundsjo et al.

Referring to claims 1 and 21, Agin discloses a method (and apparatus) comprising:

Providing at least two communication services to be transmitted using at least one code division multiplexing code, wherein the at least two communication services comprise at least a first communication service to be transmitted pursuant to a first level of quality-of-service and a second communication service to be transmitted pursuant to a second level of quality-of-service (paragraph [0055], where paragraph [0035] states the use of CDMA and paragraph [0027] states that each service is associated with a quality of service).

Selecting a given one of the communication services and using that given one of the communication services and a level of quality-of-service that corresponds to the given one of the communication services to govern outer loop power control during transmission of the at least two communication services using the at least one code

division multiplexing code (paragraph [0055], where paragraph [0006] further states that the selected service causes the outer power control loop to determine the target value (SIR, as indicated by paragraph [0005]) that will enable the quality of service, hence governing the outer power control loop, and where paragraph [0035] states the use of CDMA).

Agin does not disclose selecting rate matching parameters for each of the at least two communication services independently of transmission energy factors.

Lundsjo et al disclose in Figures 4A and 4B rate matching at least two communication services. Each communication service is supported by a transport channel. Three transport channels TrCHa, TrCHb and TrCHc are multiplexed with corresponding rate matching offset values assigned to the transport channels, in order to match the rate of the physical channel. Refer to Column 3, lines 44-52; Column 4, lines 35-63; and Column 7, line 32 to Column 8, line 39. Furthermore, the rate matching offset values are independent of transmission energy factors, since in some embodiments, they are "direct measures of how much "more/repetition" or "less/puncturing" needs to be applied to a block of bits...in order to maintain the desired quality" (Column 5, lines 28-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include selecting rate matching parameters for each of the at least two communication services independently of transmission energy factors; the motivation being so that the network and mobile station can "match and balance the bit rates of multiple transport channels handling

multiple services to the bit rate of a physical channel handling multiplexed services" (Column 1, lines 10-16) while at the same time ensuring a desired quality of service.

Referring to claim 2, Agin discloses wherein providing at least two communication services includes providing a voice service and a data service (as indicated by a UMTS CDMA system in paragraph [0002]).

Referring to claims 3 and 4, Agin discloses wherein providing at least two communication services to be transmitted using at least one code division multiplexing code wherein the at least two communication services comprise at least a first communication service to be transmitted pursuant to a first level of quality-of-service (paragraph [0055], where paragraph [0035] states the use of CDMA and paragraph [0027] states that each service is associated with a quality of service) comprises using transmitted data error information to characterize the quality-of-service (paragraph [0044], where the quality of service can be characterized with the FER (frame error rate)).

Referring to claims 5, 6 and 23, Agin discloses wherein selecting a given one of the communication services comprises selecting a given one of the communications services that has a highest level of quality of service as compared to others of the at least two communications services (paragraph [0075], and since the calculation module dynamically, for a given link, at a given time, selects the type of service with the highest power, it must order the level of the quality of services so that the service with the highest power can be chosen).

Referring to claims 7 and 22, Agin does not disclose wherein selecting rate matching parameters for each of the at least two communication services independently of transmission energy factors comprises determining a rate matching parameter ratio.

Lundsjo et al in Figure 3a that the rate matching unit 308 operates to match and balance the various bit rates of the transport channels 300 to a bit rate of a composite transport channel 312. This is done by selecting a reference transport channel and then assigning a rate matching parameter ratio (rate matching offset value) to each of the remaining transport channels. Refer to Column 4, lines 56-63; Column 5, lines 9-19; and Column 8, lines 13-30. Furthermore, the rate matching offset values are independent of transmission energy factors, since in some embodiments, they are "direct measures of how much "more/repetition" or "less/puncturing" needs to be applied to a block of bits...in order to maintain the desired quality" (Column 5, lines 28-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein selecting rate matching parameters for each of the at least two communication services independently of transmission energy factors comprises determining a rate matching parameter ratio; the motivation being so that each transport channel can be assigned a fraction of the total channel bandwidth using a predetermined ratio relative to a reference in order to maintain consistency in rate matching.

Referring to claim 8, Agin does not disclose wherein determining a rate matching parameter ratio includes using the rate matching parameter ratio to allocate transport channel sizes to be used to transmit the communication services.

Lundsjo et al discloses in Figures 4a and 4b that the transport channels uses the rate matching offset values to assign transport channel sizes to communicate the communication services. Using the rate matching offset values, TrCHa has five repeated bits, TrCHb has 11 repeated bits and TrCHc has 6 pits punctured; all combined into a single physical channel CCTrCH. Refer to Column 8, lines 13-39. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein determining a rate matching parameter ratio includes using the rate matching parameter ratio to allocate transport channel sizes to be used to transmit the communication services; the motivation being that the transport channel sizes are allocated according to a corresponding rate matching offset value in order to maintain a desired quality of service for the communication service.

Referring to claim 9, Agin does not disclose wherein allocating transport channel sizes comprises at least one of: increasing a quantity of transmitted symbols as corresponds to at least one of the communication services; and decreasing a quantity of transmitted symbols as corresponds to at least one of the communication services.

Lundsjo et al discloses in Figures 4a and 4b that allocating the transport channels uses the rate matching offset values to assign transport channel sizes comprises increasing the quantity of transmitted symbols (TrCHa and TrCHb) and decreasing the quantity of transmitted symbols (TrCHc). Refer to Column 8, lines 13-39. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein allocating transport channel sizes comprises at least one of: increasing a quantity of transmitted symbols as corresponds to at least

one of the communication services; and decreasing a quantity of transmitted symbols as corresponds to at least one of the communication services; the motivation being that the transport channel sizes are allocated according to a corresponding rate matching offset value in order to maintain a desired quality of service for the communication service.

Referring to claim 10, Agin does not disclose that wherein determining a rate matching parameter ratio comprises determining a proportional processing gain for at least one of the communication services.

Lundsjo et al disclose that the rate matching offset are "direct measures of how much "more/repetition" or "less/puncturing" needs to be applied to a block of bits...in order to maintain the desired quality". The quality can be represented by a processing gain: energy per bit/noise (E_b/N_o) or energy per symbol/noise (E_s/N_o). Since each transport channel requires a different quality of service, their corresponding rate matching offset will represent a processing gain E_b/N_o or E_s/N_o. Refer to Column 5, lines 28-57. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that wherein determining a rate matching parameter ratio comprises determined a proportional processing gain for at least one of the communication services; the motivation being in order to allow each communication service to maintain a desired quality of service based on E_b/N_o or E_s/N_o values.

Referring to claim 11, Agin does not disclose that wherein determining a proportional processing gain for at least some of the communication services comprises

determining a proportional processing gain for each of the communication services other than the given one of the communication services.

Lundsjo et al disclose that the rate matching offset are "direct measures of how much "more/repetition" or "less/puncturing" needs to be applied to a block of bits...in order to maintain the desired quality". The quality can be represented by a processing gain: energy per bit/noise (E_b/N_o) or energy per symbol/noise (E_s/N_o). An appropriate rate matching offset is assigned to each transport channel, which supports a different communication service. Since each transport channel requires a different quality of service, their corresponding rate matching offset will represent a processing gain E_b/N_o or E_s/N_o. Refer to Column 5, lines 28-57. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that wherein determining a proportional processing gain for at least some of the communication services comprises determining a proportional processing gain for each of the communication services other than the given one of the communication services; the motivation being in order to allow every communication service to maintain a desired quality of service based on E_b/N_o or E_s/N_o values.

Referring to claim 12, Agin does not disclose wherein the selecting rate matching parameters for each of the at least two communication services comprises combining the proportional processing gain as determined for each of the communication services other than the given one of the communication services with a rate matching parameter for the given one of the communication services.

Lundsjo et al disclose that the rate matching offset are "direct measures of how much "more/repetition" or "less/puncturing" needs to be applied to a block of bits...in order to maintain the desired quality". The quality can be represented by a processing gain: energy per bit/noise (E_b/N_o) or energy per symbol/noise (E_s/N_o). An appropriate rate matching offset is assigned to each transport channel, which supports a different communication service. Since each transport channel requires a different quality of service, their corresponding rate matching offset will represent a processing gain E_b/N_o or E_s/N_o. Refer to Column 5, lines 28-57. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that wherein the selecting rate matching parameters for each of the at least two communication services comprises combining the proportional processing gain as determined for each of the communication services other than the given one of the communication services with a rate matching parameter for the given one of the communication services; the motivation being in order to allow every communication service to maintain a desired quality of service based on E_b/N_o or E_s/N_o values.

Referring to claims 16, 18, 25 and 26, Agin discloses the use of CDMA (paragraph [0035]).

However, Agin does not disclose modifying at least some of the rate matching parameters during transmission of the communication services.

Lundsjo et al disclose that the network can change the reference transport channel. If the reference transport channel is changed, the corresponding rate matching offset values will also be changed. Refer to Column 5, lines 28-57 and

Column 9, lines 42-52. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include modifying at least some of the rate matching parameters during transmission of the communication services; the motivation being in order to make the system more flexible to changing conditions.

Referring to claims 17 and 20, Agin does not disclose receiving information regarding substantially current channel conditions and wherein modifying at least some of the rate matching parameters during transmission of the communication services comprises modifying at least some of the rate matching parameters during transmission of the communication services as a function, at least in part, of the current channel conditions.

Lundsjo et al disclose that the rate matching offset values can be measures of how much repetition and puncturing is needed to maintain a desired quality of service based on desired differences in quality between transport channels. Refer to Column 5, lines 28-57. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include receiving information regarding substantially current channel conditions and wherein modifying at least some of the rate matching parameters during transmission of the communication services comprises modifying at least some of the rate matching parameters during transmission of the communication services as a function, at least in part, of the current channel conditions; the motivation being that the channel conditions affect how the transport channel maintains its quality of service.

Referring to claim 19, Agin does not specifically disclose storing at least some information that corresponds to modifications of the rate matching parameters and using the information to determine rate matching parameters to support a subsequent communication session.

However, Agin discloses that the network selects one of the plurality of transport channels to be the reference transport channel on which to base the other rate matching offset values, and can change the reference transport channel at any time. Refer to Column 9, lines 42-52. The rate matching offset values must be stored for successive sessions until the reference transport channel is changed, during which all other rate matching offset values are changed. Refer to Column 5, lines 28-57. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include storing at least some information that corresponds to modifications of the rate matching parameters and using the information to determine rate matching parameters to support a subsequent communication session; the motivation being to facilitate rate matching by storing rate matching parameters to be used dynamically.

3. Claims 13, 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2004/0082301 (Agin) in view of U.S. Patent No. 6,473,442 to Lundsjo et al, and in further view of Baey et al titled "QOS Tuning and Resource Sharing for UMTS WCDMA Multiservice Mobile", as submitted by applicant.

Agin discloses substantially all the claimed invention as specified above, however does not disclose expressly further comprising selecting a transmit energy level and

wherein selecting a transmit energy level comprises determining power requirements to likely achieve each of the preferred levels of quality-of-service and determining the transmit energy level as a function of the power requirements.

Baey et al discloses QoS balancing is simultaneously obtained by unequal repetition or puncturing as a means to tune the required E_b/N_o (corresponding to energy level) of each TrCH (transport channel), minimizing the mobile transmission power requirement (paragraph 4 of section 2.2.1 on pg. 223, lines 8-14, hence selecting a transmit energy level where it corresponds to the minimal power requirement (able to achieve desired QoS))).

A person of ordinary skill in the art to which the invention pertains would have been motivated to combine Baey et al with Agin in order to minimize the power level corresponding to the quality of service by adjusting the transmit energy level. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Baey et al with Agin (collectively Agin-Baey et al) in order to obtain the invention as specified in claims 1, 13, and 14. The suggestion/motivation to do so would have been to fine balance the quality of service (minimizing the transmission power level) by using the transmit energy level since it is associated with the power level.

Allowable Subject Matter

4. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng CN
June 25, 2005

RICKY NGO
PRIMARY EXAMINER

9/27/05